WE CLAIM:

1. A method for blanket depositing a SiGe film comprising:

intermixing a silicon source, a germanium source and an etchant to form a gaseous precursor mixture;

flowing the gaseous precursor mixture over a substrate under chemical vapor deposition conditions; and

depositing a blanket layer of epitaxial SiGe over the substrate, the epitaxial SiGe formed from at least some of the components of the gaseous precursor mixture.

2. The method of Claim 1, wherein an underlying blanket layer is positioned over the substrate, such that the blanket layer of epitaxial SiGe is deposited over the underlying blanket layer.

3. The method of Claim 1, wherein the substrate is patterned with windows of single crystal material framed by a dielectric material.

4. The method of Claim 1, wherein the substrate is patterned with windows of single crystal material framed by a dielectric material, wherein the dielectric material is an oxide.

5. The method of Claim 1, wherein the substrate is patterned with windows of single crystal material within a dielectric material, wherein the dielectric material is a nitride.

6. The method of Claim 1, wherein the substrate is patterned with a shallow trench isolation scheme.

7. The method of Claim 1, wherein the blanket layer of epitaxial SiGe has a surface roughness of less than approximately 40 Å rms.

8. The method of Claim 1, wherein the blanket layer of epitaxial SiGe has a surface roughness of less than approximately 20 Å rms.

9. The method of Claim 1, wherein the substrate comprises a bare single crystal silicon substrate.

10. The method of Claim 1, wherein the epitaxial SiGe film has a greater silicon content at the interface with the substrate than at other points in the film.

11. The method of Claim 1, wherein the silicon source is selected from the group consisting of silane, disilane, trisilane, chlorosilane, dichlorosilane, trichlorosilane, and tetrachlorosilane.

12. The method of Claim 1, wherein the germanium source is selected from the group consisting of germane, digermane, trigermane, chlorogermane, dichlorogermane, trichlorogermane, and tetrachlorogermane.

13. The method of Claim 1, wherein the etchant comprises hydrogen chloride.

14. The method of Claim 1, wherein the etchant is present in an amount that is less than the combined amounts of the silicon source and the germanium source, on a weight basis.

15. The method of Claim 1, wherein the blanket layer of epitaxial SiGe has a greater degree of planarity as compared to a reference blanket layer of epitaxial SiGe deposited under comparable conditions, except in the absence of the etchant.

16. The method of Claim 1, wherein the blanket layer of epitaxial SiGe has a reduced density of defects as compared to a reference blanket layer of epitaxial SiGe deposited under comparable conditions, except in the absence of the etchant.

17. The method of Claim 1, wherein the blanket layer of epitaxial SiGe has an etch pit density of less than 10^7 defects cm^{-2}.

18. The method of Claim 1, wherein the blanket layer of epitaxial SiGe has an etch pit density of less than 10^5 defects cm^{-2}.

19. A method comprising:

providing a single crystal silicon substrate in a chemical vapor deposition chamber;

supplying a mass of silicon precursor into the chamber;

supplying a mass of germanium precursor into the chamber;

supplying a mass of etchant into the chamber, wherein the mass of etchant supplied is less than the mass of silicon precursor and the mass of germanium precursor, combined; and

depositing a SiGe film over the substrate.

20. The method of Claim 19, wherein the SiGe film is deposited as a blanket deposition.

21. The method of Claim 19, wherein the substrate is a bare wafer.

22. The method of Claim 19, wherein the substrate is patterned with windows of single crystal material within a dielectric material.

23. The method of Claim 19, wherein the substrate is a wafer having a first blanket layer deposited thereover, and wherein the SiGe film is deposited as a second blanket layer over the first blanket layer.

24. The method of Claim 19, wherein the chemical vapor deposition chamber is a single wafer chamber.

25. The method of Claim 19, wherein the SiGe film has a greater silicon content at the interface with the substrate than at other points in the film.

26. The method of Claim 19, wherein the silicon precursor is selected from the group consisting of silane, disilane, trisilane, chlorosilane, dichlorosilane, trichlorosilane, and tetrachlorosilane.

27. The method of Claim 19, wherein the germanium source is selected from the group consisting of germane, digermane, trigermane, chlorogermane, dichlorogermane, trichlorogermane, and tetrachlorogermane.

28. The method of Claim 19, wherein the etchant comprises hydrogen chloride.

29. The method of Claim 19, wherein the germanium content of the lanket SiGe film is between approximately 20% and approximately 100%.

30. The method of Claim 19, wherein the germanium content of the SiGe film is between approximately 40% and approximately 80%.

31. The method of Claim 19, wherein the etchant is supplied into the chamber at a rate between approximately 25 sccm and 50 sccm.

32. The method of Claim 19, wherein the chamber has a temperature between approximately 350°C and approximately 1100°C during deposition of the SiGe film.

33. The method of Claim 19, wherein the chamber has a temperature between approximately 800°C and approximately 900°C during deposition of the SiGe film.

34. The method of Claim 19, wherein the chamber has a pressure between approximately 0.200 Torr and approximately 850 Torr during deposition of the SiGe film.

35. The method of Claim 19, wherein the chamber has a pressure between approximately 1 Torr and approximately 100 Torr during deposition of the SiGe film.

36. The method of Claim 19, wherein the SiGe film has a surface roughness of less than approximately 40 Å rms.

37. The method of Claim 19, wherein the SiGe film has a surface roughness of less than approximately 30 Å rms.

38. The method of Claim 19, wherein the SiGe film has a surface roughness of less than approximately 20 Å rms.

39. A method of blanket depositing a SiGe film comprising:

intermixing a silicon source gas and a germanium source gas;

adding an etchant to the intermixed source gases to from a gaseous precursor mixture;

flowing the gaseous precursor mixture over a substrate under chemical vapor deposition conditions; and

depositing a blanket layer of epitaxial SiGe onto the substrate;

wherein the mass of etchant added to the intermixed source gases is less than a mass of etchant added to the intermixed source gases in a selective deposition process.

40. The method of Claim 39, wherein the mass of etchant added to the intermixed source gases is less than the mass of the intermixed source gases.

41. The method of Claim 39, wherein the substrate is positioned within a chemical vapor deposition chamber.

42. The method of Claim 39, wherein the substrate is positioned within a chemical vapor deposition chamber, and wherein the etchant is supplied to the chamber at between approximately 1 sccm and approximately 200 sccm.

43. The method of Claim 39, wherein the substrate is positioned within a chemical vapor deposition chamber, and wherein the etchant is supplied to the chamber at between approximately 25 sccm and approximately 50 sccm.